

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.02 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1. Facility Name and Mailing Address: Clean Rapidan Water Company-
Rapidan Mill WWTP
809 Bolling Ave, Unit C
Charlottesville, VA 22902
SIC Code : 4952 WWTP
Facility Location: 7026 Rapidan Rd
Orange, VA 22960
County: Orange
Facility Contact Name: Sally Dyer
Telephone Number: (434) 979-8900
Facility E-mail Address: sdfpc@comcast.net
2. Permit No.: VA0092339
Expiration Date of previous permit: July 16, 2014
Other VPDES Permits associated with this facility: VAN020166
Other Permits associated with this facility: None
E2/E3/E4 Status: Not Applicable (NA)
3. Owner Name: Rapidan Mill LLC
Owner Contact/Title: Kevin O'Brien, Development Manager
Telephone Number: (434) 979-8900
Owner E-mail Address: sdfpc@comcast.net
4. Application Complete Date: May 2, 2014
Permit Drafted By: Alison Thompson
Date Drafted: June 6, 2014
Draft Permit Reviewed By: Joan Crowther
Date Reviewed: June 25, 2014
Draft Permit Reviewed By: Susan Mackert
Date Reviewed: July 10, 2014
Public Comment Period : Start Date: August 7, 2014
End Date: September 8, 2014
5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination*
Receiving Stream Name : Rapidan River
Stream Code: 3-RAP
Drainage Area at Outfall: 445 sq.mi.
River Mile: 37.93
Stream Basin: Rappahannock
Subbasin: None
Section: 4
Stream Class: III
Special Standards: None
Waterbody ID: VAN-E16R
7Q10 Low Flow: 9.7 MGD
7Q10 High Flow: 54 MGD
1Q10 Low Flow: 6.5 MGD
1Q10 High Flow: 40 MGD
30Q10 Low Flow: 16 MGD
30Q10 High Flow: 72 MGD
Harmonic Mean Flow: 98 MGD
30Q5 Flow: 26 MGD

*Staff reviewed the flow frequencies determined with the 2009 issuance and has determined that these values are still appropriate and shall be used for the reissuance.

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

☒ State Water Control Law
☒ Clean Water Act
☒ VPDES Permit Regulation

☒ EPA NPDES Regulation

☒ EPA Guidelines
☒ Water Quality Standards
☒ Other: 9VAC25-820 -

General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia

7. Licensed Operator Requirements: Class IV

8. Reliability Class: Class II

9. Permit Characterization:

<input checked="" type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Whole Effluent Toxicity Program Required	<input type="checkbox"/> Interim Limits in Permit
<input type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL	<input type="checkbox"/> e-DMR Participant	

10. Wastewater Sources and Treatment Description:

This facility is not yet constructed. The proposed system will serve a mixed use industrial development with a maximum occupancy of approximately 300 people. Treatment will consist of primary settling, aerated flow equalization, biological nutrient removal technology such as a modified Bardenpho process for CBOD, TSS and Nutrient removal, UV disinfection and post aeration.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic and/or Commercial Wastewater	See Item 10 above.	0.02 MGD	38° 18' 37" N 78° 03' 58" W
See Attachment 2 for (Rapidan, DEQ #185D) topographic map.				

11. Sludge Treatment and Disposal Methods:

It is proposed that there will be no sludge treatment at this facility. Sludge will be pumped and hauled off site by Brown & Sons Septic Service to the Remington (VA0076805) WWTP for final treatment and disposal. Grease tank solids will be pumped and hauled off site by Valley Proteins for processing.

12. Monitoring Stations and Other Items in Vicinity of Discharge

TABLE 2 – Other Items	
3-RAP037.90	DEQ ambient water quality monitoring station located at the Route 615
3-RAP035.10	DEQ ambient water quality monitoring station located at the Route 689 Rapidan River Bridge crossing
VA0087718	DOC – Coffeewood Correctional Center
VAG406010	Robert C. Norris Residence
VAG406041	Hearth Stuartfield Residence
VAG406154	Marius V. Ianas Residence
VAG406305	John C. Price Residence
VAG406306	Gillis L. Chandler Jr. Residence
VAG406337	Lothar Briehmaier Residence
VAG406362	Luther Hardy III Residence
VAG406381	Fred M. Reid Jr. Residence
VAG406382	Donald C. Lay Residence
VAG406414	William Stanley Property
VAG406438	First Land LLC Division – Parcel 1
VAG406439	First Land LLC Division – Parcel 2
VAG406440	First Land LLC Division – Parcel 3
VAG406441	First Land LLC Division – Parcel 4
VAG406444	Helm LaDue Partnership Property
VAG406453	Christopher Koelber Property
VAG751085	Rappahannock Electric Coop – Culpeper District Office

13. Material Storage:

There are no materials stored since the facility is not built.

14. Site Inspection:

Performed by Susan Mackert and Alison Thompson on April 29, 2008. Since there has been no activity on the site, a new site visit was not conducted. The 2008 site visit memorandum is located in Attachment 3.

15. Receiving Stream Water Quality and Water Quality Standards:**a. Ambient Water Quality Data**

This facility discharges to the Rapidan River. DEQ ambient monitoring station 3-RAP037.90 is located at Route 615 (Rapidan Road), 0.03 mile downstream from the proposed Outfall 001. The following is the water quality summary for this segment of the Rapidan River, as taken from the 2012 Integrated Report:

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. This impairment is nested within the downstream completed bacteria TMDL for the Rapidan River.

The aquatic life and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 3 - 303(d) Impairment and TMDL information for the receiving stream segment

Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	TMDL Schedule
<i>Impairment Information in the 2012 Integrated Report</i>						
Rapidan River	Recreation	<i>E. coli</i>	Rapidan River Basin Bacteria 12/05/2007	3.48E+10 cfu/year <i>E. coli</i>	126 cfu/100 ml <i>E. coli</i> --- 0.0200 MGD	---

TABLE 4 - Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
<i>Impairment Information in the 2012 Integrated Report</i>							
Rapidan River	Fish Consumption	Mercury	34 miles	---	---	---	2022

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition]. Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

The planning statement is found in Attachment 4.

c. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, Rapidan River, is located within Section 4 of the Rappahannock River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

The Freshwater Water Quality/Wasteload Allocation Analysis (Attachment 5) details other water quality criteria applicable to the receiving stream.

Some Water Quality Criteria are dependent on the temperature and pH and Total Hardness of the stream and final effluent. The stream values used as part of Attachment 5 are as follows:

pH and Temperature for Ammonia Criteria:

The fresh water, aquatic life Water Quality Criteria for Ammonia are dependent on the instream temperature and pH. Since the effluent may have an impact on the instream values, the temperature and pH values of the effluent must also be considered when determining the ammonia criteria for the receiving stream. The 90th percentile temperature and pH values are used because they best represent the critical design conditions of the receiving stream.

DEQ Monitoring Staff has compiled watershed pH and temperature values for VAN-E16R utilizing all the DEQ ambient stream data from the watershed from January 1, 1990 through February 28, 2011. The 90% percentile pH for the watershed is 8.0 S.U. and the 10% percentile pH is 6.7 S.U. The 90% annual temperature is 25.7°C and the wet season 90% percentile

temperature is 15.4°C.

A default temperature value of 25°C for the annual temperature and 15°C for the wet season, and a default pH value of 8.0 S.U. were used for the final effluent since the facility is not constructed and there is no data to evaluate.

The ammonia criteria in Attachment 5 are based on the above values.

Total Hardness for Hardness-Dependent Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's total hardness (expressed as mg/L calcium carbonate) as well as the total hardness of the final effluent.

DEQ Monitoring Staff has compiled watershed average total hardness values for VAN-E16R utilizing all the DEQ ambient stream data from the watershed from January 1, 1990 through February 28, 2011. The average total hardness for the watershed is 101.6 mg/L calcium carbonate.

There is no hardness data for this facility. Staff guidance suggests using a default hardness value of 50 mg/L CaCO₃ for facilities and streams east of the Blue Ridge.

The hardness-dependent metals criteria in Attachment 5 are based on the above values.

Bacteria Criteria:

The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 ml of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean ¹
Freshwater <i>E. coli</i> (N/100 ml)	126

¹For a minimum of four weekly samples [taken during any calendar month].

d. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Rapidan River, is located within Section 4 of the Rappahannock Basin. This section has been designated with no special standards.

e. Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on May 28, 2014, for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified to possibly be within a 2 mile radius of the discharge: Loggerhead Shrike, Henslow's Sparrow, and Green Floater. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened and endangered species found near the discharge. The database search results are found in Attachment 6.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 2 based on the information provided by the DEQ Planning Staff from the 2012 Integrated Report. No significant degradation to the existing water quality will be allowed. In accordance with current DEQ guidance, no significant lowering of water quality is to occur where permit limits are based on the following:

- The dissolved oxygen in the receiving stream is not lowered more than 0.2 mg/L from the existing levels;
- The pH of the receiving stream is maintained within the range 6.0-9.0 S.U.;
- There is compliance with all temperature criteria applicable to the receiving stream;

- No more than 25% of the unused assimilative capacity is allocated for toxic criteria established for the protection of aquatic life; and
- No more than 10% of the unused assimilative capacity is allocated for criteria for the protection of human health.

The antidegradation policy also prohibits the expansion of mixing zones to Tier 2 waters unless the requirements of 9VAC25-260-30.A.2 are met. The draft permit is not proposing an expansion of the mixing zone.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are then calculated on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a. Effluent Screening:

This facility is still not constructed so there is no effluent data to review. Based on the nature of the discharge and the proposed treatment, the following pollutant requires a wasteload allocation analysis: Ammonia as N.

b. Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{Co [Qe + (f) (Qs)] - [(Cs) (f) (Qs)]}{Qe}$$

Where:	WLA	= Wasteload allocation
	Co	= In-stream water quality criteria
	Qe	= Design flow
	f	= Decimal fraction of critical flow from mixing evaluation
	Qs	= Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
	Cs	= Mean background concentration of parameter in the receiving stream.

The Water Quality Standards contain two distinct mixing zone requirements. The first requirement is general in nature and requires the "use of mixing zone concepts in evaluating permit limits for acute and chronic standards in 9VAC25-260-140.B". The second requirement is specific and establishes special restrictions for regulatory mixing zones "established by the Board".

The Department of Environmental Quality uses a simplified mixing model to estimate the amount of mixing of a discharge with the receiving stream within specified acute and chronic exposure periods. The simplified model contains the following assumptions and approximations:

- The effluent enters the stream from the bank, either via a pipe, channel or ditch.
- The effluent velocity isn't significantly greater (no more than 1 - 2 ft/sec greater) than the stream velocity.
- The receiving stream is much wider than its depth (width at least ten times the depth).
- Diffusive mixing in the longitudinal direction (lengthwise) is insignificant compared with advective transport (flow).
- Complete vertical mixing occurs instantaneously at the discharge point. This is assumed since the stream depth is much smaller than the stream width.
- Lateral mixing (across the width) is a linear function of distance downstream.
- The effluent is neutrally buoyant (e.g. the effluent discharge temperature and salinity are not significantly different from the stream's ambient temperature and salinity).
- Complete mix is determined as the point downstream where the variation in concentration is 20% or less across the width and depth of the stream.

- The velocity of passing and drifting organisms is assumed equal to the stream velocity.

If it is suitably demonstrated that a reasonable potential for lethality or chronic impacts within the physical mixing area doesn't exist, then the basic complete mix equation, with 100% of the applicable stream flow, is appropriate. If the mixing analysis determines there is a potential for lethality or chronic impacts within the physical mixing area, then the proportion of stream flow that has mixed with the effluent over the allowed exposure time is used in the basic complete mix equation. As such, the wasteload allocation equation is modified to account for the decimal fraction of critical flow (f).

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a WWTP treating sewage. As such, Attachment 5 details the mixing analysis results and WLA derivations for these pollutants.

Antidegradation Wasteload Allocations (AWLAs).

Since the receiving stream has been determined to be a Tier 2 water, staff must also determine antidegradation wasteload allocations (AWLAs). The steady state complete mix equation is used substituting the antidegradation baseline (Cb) for the in-stream water quality criteria (C_o):

$$AWLA = \frac{Cb (Q_e + Q_s) - (C_s) (Q_s)}{Q_e}$$

Where:	AWLA	=	Antidegradation-based wasteload allocation
	Cb	=	In-stream antidegradation baseline concentration
	Qe	=	Design flow
	Qs	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
	Cs	=	Mean background concentration of parameter in the receiving stream.

Calculated AWLAs for the pollutants noted in b. above are presented in Attachment 5.

c. Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs and AWLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

Ammonia as N/TKN:

The facility will again be given a year round TKN limit of 3.0 mg/L. A TKN limit of 3.0 mg/L assumes that ammonia is removed and that the remaining nitrogen is in the form of refractory organic compounds that will not be easily oxidized. The weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day (CBOD₅), total suspended solids (TSS), Total Kjeldahl Nitrogen (TKN), and pH limitations are proposed. Based on the design flow rate of the proposed facility and the flow of the receiving stream, it is staff's best professional judgment that stream modeling is not necessary with this reissuance. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and are set to ensure that the receiving stream D.O. does not decrease more than 0.2 mg/L to meet the requirements of the antidegradation policy.

A minimum D.O. limitation of 6.0 mg/L is proposed to be carried forward with this reissuance. This limitation is in accordance with the Water Quality Standards 9 VAC25-260-50.

A monthly average CBOD₅ limitation of 10 mg/L is proposed to be carried forward with this reissuance. This limit is based on best professional judgment and the Water Permit Manual which recommends effluent limitations should be of such quality to essentially be self-sustaining. The weekly average limit will be 15 mg/L based on a multiplier of 1.5 times the monthly average.

It is staff's practice to equate the Total Suspended Solids limits with the CBOD₅ limit since the two pollutants are closely related in terms of treatment of domestic sewage. Therefore, a monthly average TSS limitation of 10 mg/L is proposed to be carried forward with this reissuance. The weekly average limit will be 15 mg/L based on a multiplier of 1.5 times the monthly average.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

e. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. There are three regulations that necessitate the inclusion of nutrient limitations since this is a new discharge that was not accounted for in the TMDL.

The basis for the concentration limits is 9VAC25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of ≥ 0.04 MGD to treat for TN and TP to either BNR (Biological Nutrient Removal) levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA (State of the Art) levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

Monitoring for Nitrates + Nitrites, Total Kjeldahl Nitrogen, Total Nitrogen, and Total Phosphorus are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for Total Nitrogen and Total Phosphorus are included in this individual permit. The annual averages are based on the offset plan submitted as part of the Registration Statement for 9VAC25-820.

This facility has also applied for coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. This facility has applied for coverage under this General Permit; the permit number is VAN020166. Because this facility has zero allocation for Total Nitrogen and/or Total Phosphorus loadings, an updated offset plan shall be provided to DEQ prior to or with the Certificate to Construct (CTC) application and shall be included in the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation For Total Nitrogen And Total Phosphorus Discharges And Nutrient Trading In The Chesapeake Bay Watershed. The updated offset plan shall be subject to a DEQ-approved trading contract prepared in accordance with 62.1-44.19:12-19 of the Law and 9VAC25-820-10 et seq., and which includes, but not limited to, the following:

- a. Discussion of the source of the acquired allocations,
- b. Discussion of other permitted facilities involved in the trade, and
- c. Discussion of any non-point source allocations acquired.

f. Effluent Limitations and Monitoring Summary:

The effluent limitations are presented in the following table. Limits were established for CBOD₅, Total Suspended Solids, Total Kjeldahl Nitrogen, pH, Dissolved Oxygen, and *E. coli*.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

The mass loading (lb/d) for TKN monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 8.345.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for CBOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

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19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.02 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	Estimate
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
CBOD ₅	2, 3	10 mg/L 0.76 kg/day	15 mg/L 1.1 kg/day	NA	NA	1/M	Grab
Total Suspended Solids (TSS)	2	10 mg/L 0.76 kg/day	15 mg/L 1.1 kg/day	NA	NA	1/M	Grab
Dissolved Oxygen (DO)	3	NA	NA	6.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2, 3	3.0 mg/L 0.50 lb/day	4.5 mg/L 0.75 lb/day	NA	NA	1/M	Grab
<i>E. coli</i> (Geometric Mean)	3	126 n/100mls	NA	NA	NA	1/W	Grab
Nitrate+Nitrite, as N	3, 5	NL mg/L	NA	NA	NA	1/M	Grab
Total Nitrogen ^a	3, 5	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen – Year to Date ^b	3, 5	NL mg/L	NA	NA	NA	1/M	Calculated
Total Nitrogen - Calendar Year ^b	3, 5	8.0 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3, 5	NL mg/L	NA	NA	NA	1/M	Grab
Total Phosphorus – Year to Date ^b	3, 5	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus - Calendar Year ^b	3, 5	1.0 mg/L	NA	NA	NA	1/YR	Calculated

The basis for the limitations codes are:

MGD = Million gallons per day.*1/D* = Once every day.

1. Federal Effluent Requirements

NA = Not applicable.*1/W* = Once every week.

2. Best Professional Judgment

NL = No limit; monitor and report.*1/M* = Once every month.

3. Water Quality Standards

S.U. = Standard units.*1/YR* = Once every calendar year.

4. DEQ Disinfection Guidance

5. 9VAC25-40 (Nutrient Regulation)

Grab= An individual sample collected over a period of time not to exceed 15 minutes.

Estimate= Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

a. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

b. See Section 20. for more information on the Nutrient Calculations.

20. Other Permit Requirements:

Part I.B. of the permit contains quantification levels and compliance reporting instructions.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

21. Other Special Conditions:

- a. **95% Capacity Reopener.** The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. The facility is a PVOTW.
- b. **Indirect Dischargers.** Required by VPDES Permit Regulation, 9VAC25-31-200 B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c. **O&M Manual Requirement.** Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d. **CTC, CTO Requirement.** The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- e. **Licensed Operator Requirement.** The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and by the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class IV operator.
- f. **Reliability Class.** The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of II.
- g. **Water Quality Criteria Reopener.** The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- h. **Sludge Reopener.** The VPDES Permit Regulation at 9VAC25-31-220.C requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA.
- i. **Sludge Use and Disposal.** The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.
- j. **Treatment Works Closure Plan.** This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section §62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purpose of the State Water Control Law.
- k. **Nutrient Offsets.** The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.
- l. **E3/E4.** 9VAC25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4)

facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

- m. **Nutrient Reopener.** 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
- n. **TMDL Reopener.** This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.
- o. **Notification of Commencement of Discharge.** This special condition requires the permittee to submit annual DMRs until commencement of discharge at which time the DMR submittal shall be monthly.

22. Permit Section Part II.

Required by VPDES Regulation 9VAC25-31-190, Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

- a. Special Conditions:
 - 1) The following special conditions were added to the draft permit due to the inclusion of Total Nitrogen and Total Phosphorus monitoring and limitations: Nutrient Reopener, E3/E4, and Nutrient Offsets.
 - 2) A special condition for the notification of commencement of discharge was added.
- b. Monitoring and Effluent Limitations:
 - 1) Nitrate+Nitrite monitoring has been added to the proposed permit.
 - 2) Total Nitrogen and Total Phosphorus annual average concentrations have been added to the proposed permit.
 - 3) Total Nitrogen and Total Phosphorus bimonthly monitoring and year-to-date reporting have been added to the proposed permit.

24. Variances/Alternate Limits or Conditions:

No variances or alternate limits are proposed.

25. Public Notice Information:

First Public Notice Date: August 7, 2014

Second Public Notice Date: August 14, 2014

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3834, Alison.Thompson@deq.virginia.gov. See Attachment 7 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. Additional Comments:

Previous Board Action(s): None.

Staff Comments: This permit reissuance was delayed since a complete application was not submitted until May 2, 2014.

Public Comment: The US Fish & Wildlife Service (USFWS) requested coordination for this facility. Brett Hillman, Fish and Wildlife Biologist from the Gloucester, Virginia Office, provided comments on May 16, 2014. He noted that the federally listed endangered dwarf wedgemussel (*Alasmidonta heterodon*) and the federally species of concern yellow lance (*Elliptio lanceolatus*) are known to occur in the Rapidan drainage close to the proposed point of discharge. Mr. Hillman noted that as long as the permittee adheres to the conditions of the permit, the USFWS does not anticipate adverse impacts to either mussel species.

The Virginia Department of Conservation & Recreation (DCR) also requested coordination for this reissuance. The project was submitted on May 15, 2014. The initial project review noted two Natural Heritage Features within the search radius: the Yellow Lance (invertebrate animal) and the Tall Dropseed (vascular plant). DEQ received DCR's full review on June 11, 2014. DCR recommended UV/ozone for disinfection, coordination with DGIF, and adoption of the EPA ammonia limits to be protective of mussels. The comment letter can be found in Attachment 8.

MEMORANDUM
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE

13901 Crown Court

Woodbridge, VA 22193

SUBJECT: Flow Frequency Determination
Rapidan Mill WWTP (VA0092339)

TO: Permit Issuance File

FROM: Susan Mackert

DATE: March 25, 2009

The proposed discharge from the Rapidan Mill WWTP is to the Rapidan River near Rapidan, Virginia. Stream flow frequencies are required at this site for use in developing effluent limitations for the VPDES permit.

The USGS has operated a continuous record gage on the Rapidan River near Culpeper, Virginia (#01667500) since 1930. The gage is approximately 5.66 miles downstream of the discharge point. The flow frequencies for the gage are presented below. The values at the discharge point were determined by drainage area proportions and do not address any withdrawals, discharges or springs lying between the gage and the outfall.

Rapidan River near Culpeper, VA (#01667500):

Drainage Area = 472 mi²

1Q10 = 11 cfs	High Flow 1Q10 = 66 cfs
7Q10 = 16 cfs	High Flow 7Q10 = 89 cfs
30Q10 = 27 cfs	High Flow 30Q10 = 119 cfs
30Q5 = 44 cfs	Harmonic Mean = 161 cfs

Rapidan River at discharge point:

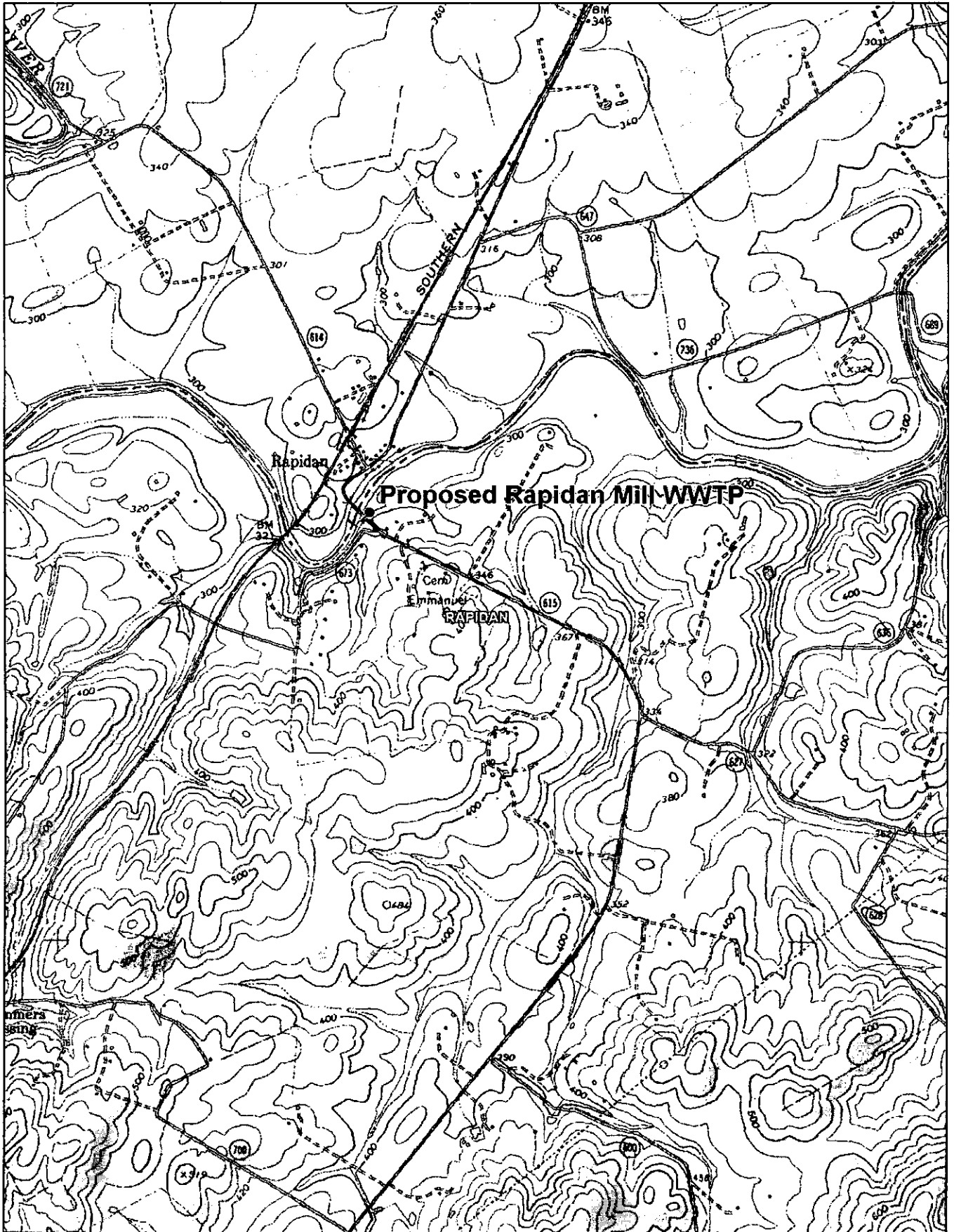
Drainage Area = 445 mi²

1Q10 = 10 cfs (6.5 MGD)*	High Flow 1Q10 = 62 cfs (40 MGD)*
7Q10 = 15 cfs (9.7 MGD)*	High Flow 7Q10 = 84 cfs (54 MGD)*
30Q10 = 25 cfs (16 MGD)*	High Flow 30Q10 = 112 cfs (72 MGD)*
30Q5 = 41 cfs (26 MGD)*	Harmonic Mean = 152 cfs (98 MGD)*

*Conversion to MGD = (cfs flow measurement) x (0.6463)

The high flow months are December through May.

Attachment 1



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www.delorme.com

Attachment 2

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY NORTHERN REGIONAL OFFICE

13901 Crown Court

Woodbridge, VA 22193

SUBJECT: Rapidan Mill WWTP (VA0092339)

TO: File

FROM: Susan Mackert *SM*

DATE: May 2, 2008

COPIES:

A site visit was performed by Susan Mackert and Alison Thompson on April 29, 2008, for the proposed Rapidan Mill WWTP in Orange County, located on Route 615 at the Rapidan River bridge crossing.

This is a proposed mixed use industrial development with a maximum occupancy of approximately 300 people. Rapidan Mill LLC plans to renovate and convert the Rapidan Mill property (photos 1 - 2) located on the banks of the Rapidan River. The proposed discharge site is located at 38° 18' 37" / 78° 03' 58" and will discharge directly to the Rapidan River. At the time of the visit, there was significant flow within the Rapidan River (photos 3 - 8).

Attachment 3

FN 11-25-08
SM

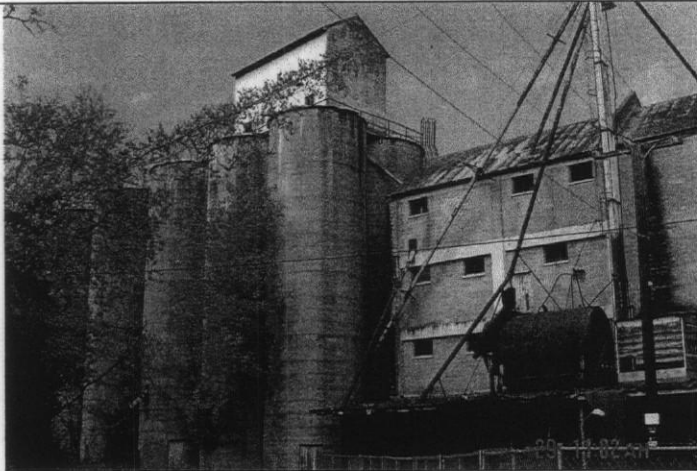


Photo 1. Rapidan Mill.

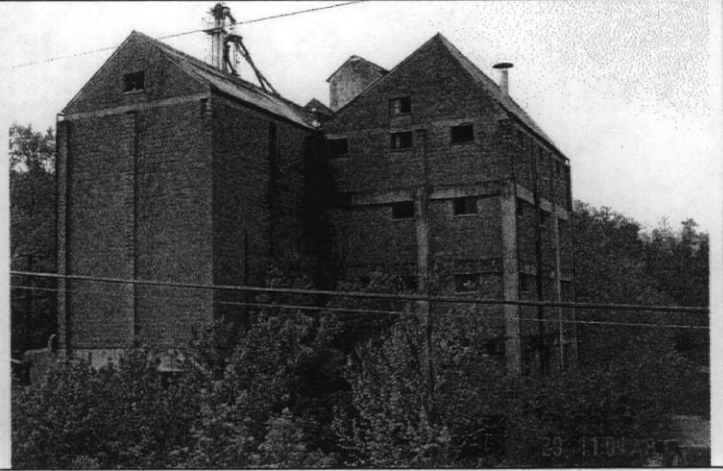


Photo 2. Rapidan Mill.



Photo 3. Upstream of proposed discharge location.



Photo 4. Upstream of proposed discharge location.

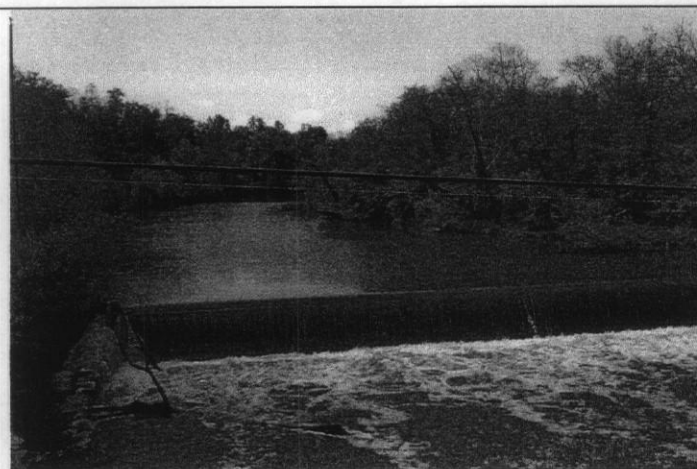


Photo 5. Falls near mill location.



Photo 6. The arrow points to a return channel from the mill.



Photo 7. Where return channel enters main river.

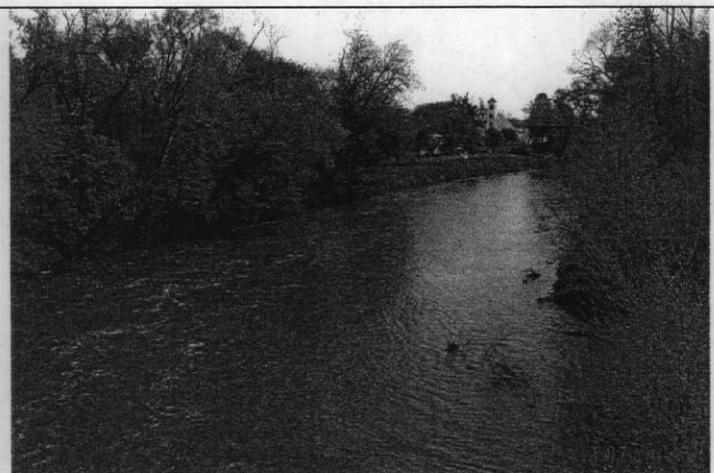


Photo 8. Downstream of proposed discharge location.

To: Alison Thompson
From: Rebecca Shoemaker
Date: June 5, 2014
Subject: Planning Statement for Rapidan Mill WWTP
Permit Number: VA0092339

Information for Outfall 001:

Discharge Type: Municipal
Discharge Flow: 0.02 MGD
Receiving Stream: Rapidan River
Latitude / Longitude: 38 18 37 78 03 58
Rivermile: 37.93
Streamcode: 3-RAP
Waterbody: VAN-E16R
Water Quality Standards: Section 4, Class III
Drainage Area: 445 square miles

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

This facility discharges to the Rapidan River. DEQ ambient monitoring station 3-RAP037.90 is located at Route 615 (Rapidan Road), 0.03 mile downstream from Outfall 001. The following is the water quality summary for this segment of the Rapidan River, as taken from the 2012 Integrated Report:

Class III, Section 4.

DEQ monitoring station located in this segment of the Rapidan River:

- *Ambient monitoring station 3-RAP037.90, at Route 615 (Rapidan Road)*

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. This impairment is nested within the downstream completed bacteria TMDL for the Rapidan River.

The aquatic life and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

Yes.

Table A. 303(d) Impairment and TMDL information for the receiving stream segment

Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the 2012 Integrated Report						
Rapidan River	Recreation	<i>E. coli</i>	Rapidan River Basin Bacteria 12/05/2007	3.48E+10 cfu/year <i>E. coli</i>	126 cfu/100 ml <i>E. coli</i> --- 0.0200 MGD	---

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the 2012 Integrated Report							
Rapidan River	Fish Consumption	Mercury	34 miles	---	---	---	2022

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

The tidal Rappahannock River, which is located approximately 65 miles downstream of this facility, is listed with a PCB impairment. In support for the PCB TMDL that is scheduled for development by 2016 for the tidal Rappahannock River, this facility is a candidate for low-level PCB monitoring, based upon its designation as a minor municipal discharger. Low-level PCB analysis uses EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility as this facility is not expected to be a source of or discharge PCBs; additionally, this facility has not yet been built. Based upon this information, this facility will not be requested to monitor for low-level PCBs.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

There are no public water supply intakes located within five miles of this discharge.

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Rapidan Mill WWTP

Permit No.: VA0092339

Receiving Stream: Rapdan River

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	101.6 mg/L
90% Temperature (Annual) =	25.7 deg C
90% Temperature (Wet season) =	15.4 deg C
90% Maximum pH =	8 SU
10% Maximum pH =	6.7 SU
Tier Designation (1 or 2) =	2
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	6.5 MGD
7Q10 (Annual) =	9.7 MGD
30Q10 (Annual) =	16 MGD
1Q10 (Wet season) =	40 MGD
30Q10 (Wet season) =	72 MGD
30Q5 =	26 MGD
Harmonic Mean =	98 MGD

Mixing Information

Annual - 1Q10 Mix =	5 %
- 7Q10 Mix =	100 %
- 30Q10 Mix =	100 %
Wet Season - 1Q10 Mix =	25.88 %
- 30Q10 Mix =	100 %

Effluent Information

Mean Hardness (as CaCO3) =	50 mg/L
90% Temp (Annual) =	25 deg C
90% Temp (Wet season) =	15 deg C
90% Maximum pH =	8 SU
10% Maximum pH =	SU
Discharge Flow =	0.02 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	1.3E+06	--	--	na	9.9E+01	--	--	na	1.3E+05	--	--	na	1.3E+05
Acrolein	0	--	--	na	9.3E+00	--	--	na	1.2E+04	--	--	na	9.3E-01	--	--	na	1.2E+03	--	--	na	1.2E+03
Acrylonitrile ^C	0	--	--	na	2.5E+00	--	--	na	1.2E+04	--	--	na	2.5E-01	--	--	na	1.2E+03	--	--	na	1.2E+03
Aldrin ^C	0	3.0E+00	--	na	5.0E-04	5.2E+01	--	na	2.5E+00	7.5E-01	--	na	5.0E-05	2.4E+02	--	na	2.5E-01	5.2E+01	--	na	2.5E-01
Ammonia-N (mg/l) (Yearly)	0	8.41E+00	1.18E+00	na	--	1.45E+02	9.48E+02	na	--	2.10E+00	2.96E-01	na	--	6.85E+02	2.37E+02	na	--	1.45E+02	2.37E+02	na	--
Ammonia-N (mg/l) (High Flow)	0	8.41E+00	2.30E+00	na	--	4.36E+03	8.28E+03	na	--	2.10E+00	5.75E-01	na	--	4.21E+03	2.07E+03	na	--	4.21E+03	2.07E+03	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	5.2E+07	--	--	na	4.0E+03	--	--	na	5.2E+08	--	--	na	5.2E+08
Antimony	0	--	--	na	6.4E+02	--	--	na	8.3E+05	--	--	na	6.4E+01	--	--	na	8.3E+04	--	--	na	8.3E+04
Arsenic	0	3.4E+02	1.5E+02	na	--	5.9E+03	7.3E+04	na	--	8.5E+01	3.8E+01	na	--	2.8E+04	1.8E+04	na	--	5.9E+03	1.8E+04	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Benzene ^C	0	--	--	na	5.1E+02	--	--	na	2.5E+06	--	--	na	5.1E+01	--	--	na	2.5E+05	--	--	na	2.5E+05
Benzidine ^C	0	--	--	na	2.0E-03	--	--	na	9.8E+00	--	--	na	2.0E-04	--	--	na	9.8E-01	--	--	na	9.8E-01
Benzo (a) anthracene ^C	0	--	--	na	1.8E-01	--	--	na	8.8E+02	--	--	na	1.8E-02	--	--	na	8.8E+01	--	--	na	8.8E+01
Benzo (b) fluoranthene ^C	0	--	--	na	1.8E-01	--	--	na	8.8E+02	--	--	na	1.8E-02	--	--	na	8.8E+01	--	--	na	8.8E+01
Benzo (k) fluoranthene ^C	0	--	--	na	1.8E-01	--	--	na	8.8E+02	--	--	na	1.8E-02	--	--	na	8.8E+01	--	--	na	8.8E+01
Benzo (a) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	8.8E+02	--	--	na	1.8E-02	--	--	na	8.8E+01	--	--	na	8.8E+01
Bis(2-Chloroethyl) Ether ^C	0	--	--	na	5.3E+00	--	--	na	2.6E+04	--	--	na	5.3E-01	--	--	na	2.6E+03	--	--	na	2.6E+03
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	8.5E+07	--	--	na	6.5E+03	--	--	na	8.5E+06	--	--	na	8.5E+06
Bis 2-Ethylhexyl Phthalate ^C	0	--	--	na	2.2E+01	--	--	na	1.1E+05	--	--	na	2.2E+00	--	--	na	1.1E+04	--	--	na	1.1E+04
Bromoform ^C	0	--	--	na	1.4E+03	--	--	na	6.9E+06	--	--	na	1.4E+02	--	--	na	6.9E+05	--	--	na	6.9E+05
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	2.5E+06	--	--	na	1.9E+02	--	--	na	2.5E+05	--	--	na	2.5E+05
Cadmium	0	3.9E+00	1.1E+00	na	--	6.7E+01	5.6E+02	na	--	1.0E+00	2.9E-01	na	--	3.2E+02	1.4E+02	na	--	6.7E+01	1.4E+02	na	--
Carbon Tetrachloride ^C	0	--	--	na	1.6E+01	--	--	na	7.8E+04	--	--	na	1.6E+00	--	--	na	7.8E+03	--	--	na	7.8E+03
Chlordane ^C	0	2.4E+00	4.3E-03	na	8.1E-03	4.1E+01	2.1E+00	na	4.0E+01	6.0E-01	1.1E-03	na	8.1E-04	2.0E+02	5.2E-01	na	4.0E+00	4.1E+01	5.2E-01	na	4.0E+00
Chloride	0	8.6E+05	2.3E+05	na	--	1.5E+07	1.1E+08	na	--	2.2E+05	5.8E+04	na	--	7.0E+07	2.8E+07	na	--	1.5E+07	2.8E+07	na	--
TRC	0	1.9E+01	1.1E+01	na	--	3.3E+02	5.3E+03	na	--	4.8E+00	2.8E+00	na	--	1.5E+03	1.3E+03	na	--	3.3E+02	1.3E+03	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	2.1E+06	--	--	na	1.6E+02	--	--	na	2.1E+05	--	--	na	2.1E+05

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^c	0	--	--	na	1.3E+02	--	--	na	6.4E+05	--	--	na	1.3E+01	--	--	na	6.4E+04	--	--	na	6.4E+04
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.4E+07	--	--	na	1.1E+03	--	--	na	1.4E+06	--	--	na	1.4E+06
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	2.1E+06	--	--	na	1.6E+02	--	--	na	2.1E+05	--	--	na	2.1E+05
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	2.0E+05	--	--	na	1.5E+01	--	--	na	2.0E+04	--	--	na	2.0E+04
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	1.4E+00	2.0E+01	na	--	2.1E-02	1.0E-02	na	--	6.8E+00	5.0E+00	na	--	1.4E+00	5.0E+00	na	--
Chromium III	0	5.6E+02	7.5E+01	na	--	9.7E+03	3.6E+04	na	--	1.4E+02	1.9E+01	na	--	4.7E+04	9.1E+03	na	--	9.7E+03	9.1E+03	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	2.8E+02	5.3E+03	na	--	4.0E+00	2.8E+00	na	--	1.3E+03	1.3E+03	na	--	2.8E+02	1.3E+03	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	1.0E+01	--	--	--	1.3E+04	--	--	--	na	--
Chrysene ^c	0	--	--	na	1.8E-02	--	--	na	8.8E+01	--	--	na	1.8E-03	--	--	na	8.8E+00	--	--	na	8.8E+00
Copper	0	1.3E+01	9.1E+00	na	--	2.3E+02	4.4E+03	na	--	3.4E+00	2.3E+00	na	--	1.1E+03	1.1E+03	na	--	2.3E+02	1.1E+03	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	3.8E+02	2.5E+03	na	2.1E+07	5.5E+00	1.3E+00	na	1.6E+03	1.8E+03	6.3E+02	na	2.1E+06	3.8E+02	6.3E+02	na	2.1E+06
DDD ^c	0	--	--	na	3.1E-03	--	--	na	1.5E+01	--	--	na	3.1E-04	--	--	na	1.5E+00	--	--	na	1.5E+00
DDE ^c	0	--	--	na	2.2E-03	--	--	na	1.1E+01	--	--	na	2.2E-04	--	--	na	1.1E+00	--	--	na	1.1E+00
DDT ^c	0	1.1E+00	1.0E-03	na	2.2E-03	1.9E+01	4.9E-01	na	1.1E+01	2.8E-01	2.5E-04	na	2.2E-04	9.0E+01	1.2E-01	na	1.1E+00	1.9E+01	1.2E-01	na	1.1E+00
Demeton	0	--	1.0E-01	na	--	--	4.9E+01	na	--	--	2.5E-02	na	--	--	1.2E+01	na	--	--	1.2E+01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	2.9E+00	8.3E+01	na	--	4.3E-02	4.3E-02	na	--	1.4E+01	2.1E+01	na	--	2.9E+00	2.1E+01	na	--
Dibenz(a,h)anthracene ^c	0	--	--	na	1.8E-01	--	--	na	8.8E+02	--	--	na	1.8E-02	--	--	na	8.8E+01	--	--	na	8.8E+01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.7E+06	--	--	na	1.3E+02	--	--	na	1.7E+05	--	--	na	1.7E+05
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	1.2E+06	--	--	na	9.6E+01	--	--	na	1.2E+05	--	--	na	1.2E+05
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	2.5E+05	--	--	na	1.9E+01	--	--	na	2.5E+04	--	--	na	2.5E+04
3,3-Dichlorobenzidine ^c	0	--	--	na	2.8E-01	--	--	na	1.4E+03	--	--	na	2.8E-02	--	--	na	1.4E+02	--	--	na	1.4E+02
Dichlorobromomethane ^c	0	--	--	na	1.7E+02	--	--	na	8.3E+05	--	--	na	1.7E+01	--	--	na	8.3E+04	--	--	na	8.3E+04
1,2-Dichloroethane ^c	0	--	--	na	3.7E+02	--	--	na	1.8E+06	--	--	na	3.7E+01	--	--	na	1.8E+05	--	--	na	1.8E+05
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	9.2E+06	--	--	na	7.1E+02	--	--	na	9.2E+05	--	--	na	9.2E+05
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.3E+07	--	--	na	1.0E+03	--	--	na	1.3E+06	--	--	na	1.3E+06
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	3.8E+05	--	--	na	2.9E+01	--	--	na	3.8E+04	--	--	na	3.8E+04
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,2-Dichloropropane ^c	0	--	--	na	1.5E+02	--	--	na	7.4E+05	--	--	na	1.5E+01	--	--	na	7.4E+04	--	--	na	7.4E+04
1,3-Dichloropropene ^c	0	--	--	na	2.1E+02	--	--	na	1.0E+06	--	--	na	2.1E+01	--	--	na	1.0E+05	--	--	na	1.0E+05
Dieldrin ^c	0	2.4E-01	5.6E-02	na	5.4E-04	4.1E+00	2.7E+01	na	2.6E+00	6.0E-02	1.4E-02	na	5.4E-05	2.0E+01	6.8E+00	na	2.6E-01	4.1E+00	6.8E+00	na	2.6E-01
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	5.7E+07	--	--	na	4.4E+03	--	--	na	5.7E+06	--	--	na	5.7E+06
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	1.1E+06	--	--	na	8.5E+01	--	--	na	1.1E+05	--	--	na	1.1E+05
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.4E+09	--	--	na	1.1E+05	--	--	na	1.4E+08	--	--	na	1.4E+08
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	5.9E+06	--	--	na	4.5E+02	--	--	na	5.9E+05	--	--	na	5.9E+05
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	6.9E+06	--	--	na	5.3E+02	--	--	na	6.9E+05	--	--	na	6.9E+05
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	3.6E+05	--	--	na	2.8E+01	--	--	na	3.6E+04	--	--	na	3.6E+04
2,4-Dinitrotoluene ^c	0	--	--	na	3.4E+01	--	--	na	1.7E+05	--	--	na	3.4E+00	--	--	na	1.7E+04	--	--	na	1.7E+04
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	6.6E-05	--	--	na	5.1E-09	--	--	na	6.6E-06	--	--	na	6.6E-08
1,2-Diphenylhydrazine ^c	0	--	--	na	2.0E+00	--	--	na	9.8E+03	--	--	na	2.0E-01	--	--	na	9.8E+02	--	--	na	9.8E+02
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	3.8E+00	2.7E+01	na	1.2E+05	5.5E-02	1.4E-02	na	8.9E+00	1.8E+01	6.8E+00	na	1.2E+04	3.8E+00	6.8E+00	na	1.2E+04
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	3.8E+00	2.7E+01	na	1.2E+05	5.5E-02	1.4E-02	na	8.9E+00	1.8E+01	6.8E+00	na	1.2E+04	3.8E+00	6.8E+00	na	1.2E+04
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	3.8E+00	2.7E+01	--	--	5.5E-02	1.4E-02	--	--	1.8E+01	6.8E+00	--	--	3.8E+00	6.8E+00	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	1.2E+05	--	--	na	8.9E+00	--	--	na	1.2E+04	--	--	na	1.2E+04
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	1.5E+00	1.7E+01	na	7.8E+01	2.2E-02	9.0E-03	na	6.0E-03	7.0E+00	4.4E+00	na	7.8E+00	1.5E+00	4.4E+00	na	7.8E+00
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.9E+02	--	--	na	3.0E-02	--	--	na	3.9E+01	--	--	na	3.9E+01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.7E+06	--	--	na	2.1E+02	--	--	na	2.7E+05	--	--	na	2.7E+05
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.8E+05	--	--	na	1.4E+01	--	--	na	1.8E+04	--	--	na	1.8E+04
Fluorene	0	--	--	na	5.3E+03	--	--	na	6.9E+06	--	--	na	5.3E+02	--	--	na	6.9E+05	--	--	na	6.9E+05
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	4.9E+00	na	--	--	2.5E-03	na	--	--	1.2E+00	na	--	--	1.2E+00	na	--
Heptachlor ^C	0	5.2E-01	3.8E-03	na	7.9E-04	9.0E+00	1.8E+00	na	3.9E+00	1.3E-01	9.5E-04	na	7.9E-05	4.2E+01	4.6E-01	na	3.9E-01	9.0E+00	4.6E-01	na	3.9E-01
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	na	3.9E-04	9.0E+00	1.8E+00	na	1.9E+00	1.3E-01	9.5E-04	na	3.9E-05	4.2E+01	4.6E-01	na	1.9E-01	9.0E+00	4.6E-01	na	1.9E-01
Hexachlorobenzene ^C	0	--	--	na	2.9E-03	--	--	na	1.4E+01	--	--	na	2.9E-04	--	--	na	1.4E+00	--	--	na	1.4E+00
Hexachlorobutadiene ^C	0	--	--	na	1.8E+02	--	--	na	8.8E+05	--	--	na	1.8E+01	--	--	na	8.8E+04	--	--	na	8.8E+04
Hexachlorocyclohexane																					
Alpha-BHC ^C	0	--	--	na	4.9E-02	--	--	na	2.4E+02	--	--	na	4.9E-03	--	--	na	2.4E+01	--	--	na	2.4E+01
Hexachlorocyclohexane																					
Beta-BHC ^C	0	--	--	na	1.7E-01	--	--	na	8.3E+02	--	--	na	1.7E-02	--	--	na	8.3E+01	--	--	na	8.3E+01
Hexachlorocyclohexane																					
Gamma-BHC ^C (Lindane)	0	9.5E-01	na	na	1.8E+00	1.6E+01	--	na	8.8E+03	2.4E-01	--	na	1.8E-01	7.7E+01	--	na	8.8E+02	1.6E+01	--	na	8.8E+02
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.4E+06	--	--	na	1.1E+02	--	--	na	1.4E+05	--	--	na	1.4E+05
Hexachloroethane ^C	0	--	--	na	3.3E+01	--	--	na	1.6E+05	--	--	na	3.3E+00	--	--	na	1.6E+04	--	--	na	1.6E+04
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	9.7E+02	na	--	--	5.0E-01	na	--	--	2.4E+02	na	--	--	2.4E+02	na	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	8.8E+02	--	--	na	1.8E-02	--	--	na	8.8E+01	--	--	na	8.8E+01
Iron	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Isophorone ^C	0	--	--	na	9.6E+03	--	--	na	4.7E+07	--	--	na	9.6E+02	--	--	na	4.7E+06	--	--	na	4.7E+06
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Lead	0	1.2E+02	1.4E+01	na	--	2.0E+03	6.7E+03	na	--	3.0E+01	3.4E+00	na	--	9.9E+03	1.7E+03	na	--	2.0E+03	1.7E+03	na	--
Malathion	0	--	1.0E-01	na	--	--	4.9E+01	na	--	--	2.5E-02	na	--	--	1.2E+01	na	--	--	1.2E+01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	2.4E+01	3.7E+02	--	--	3.5E-01	1.9E-01	--	--	1.1E+02	9.4E+01	--	--	2.4E+01	9.4E+01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	2.0E+06	--	--	na	1.5E+02	--	--	na	2.0E+05	--	--	na	2.0E+05
Methylene Chloride ^C	0	--	--	na	5.9E+03	--	--	na	2.9E+07	--	--	na	5.9E+02	--	--	na	2.9E+06	--	--	na	2.9E+06
Methoxychlor	0	--	3.0E-02	na	--	--	1.5E+01	na	--	--	7.5E-03	na	--	--	3.6E+00	na	--	--	3.6E+00	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Nickel	0	1.8E+02	2.1E+01	na	4.6E+03	3.1E+03	1.0E+04	na	6.0E+06	4.6E+01	5.1E+00	na	4.6E+02	1.5E+04	2.5E+03	na	6.0E+05	3.1E+03	2.5E+03	na	6.0E+05
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	9.0E+05	--	--	na	6.9E+01	--	--	na	9.0E+04	--	--	na	9.0E+04
N-Nitrosodimethylamine ^C	0	--	--	na	3.0E+01	--	--	na	1.5E+05	--	--	na	3.0E+00	--	--	na	1.5E+04	--	--	na	1.5E+04
N-Nitrosodiphenylamine ^C	0	--	--	na	6.0E+01	--	--	na	2.9E+05	--	--	na	6.0E+00	--	--	na	2.9E+04	--	--	na	2.9E+04
N-Nitrosodi-n-propylamine ^C	0	--	--	na	5.1E+00	--	--	na	2.5E+04	--	--	na	5.1E-01	--	--	na	2.5E+03	--	--	na	2.5E+03
Nonylphenol	0	2.8E+01	6.6E+00	--	--	4.8E+02	3.2E+03	na	--	7.0E+00	1.7E+00	--	--	2.3E+03	8.0E+02	--	--	4.8E+02	8.0E+02	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	1.1E+00	6.3E+00	na	--	1.6E-02	3.3E-03	na	--	5.3E+00	1.6E+00	na	--	1.1E+00	1.6E+00	na	--
PCB Total ^C	0	--	1.4E-02	na	6.4E-04	--	6.8E+00	na	3.1E+00	--	3.5E-03	na	6.4E-05	--	1.7E+00	na	3.1E-01	--	1.7E+00	na	3.1E-01
Pentachlorophenol ^C	0	2.7E-02	8.8E-02	na	3.0E+01	4.6E-01	4.3E+01	na	1.5E+05	2.4E-02	2.2E-02	na	3.0E+00	7.8E+00	1.1E+01	na	1.5E+04	4.6E-01	1.1E+01	na	1.5E+04
Phenol	0	--	--	na	8.6E+05	--	--	na	1.1E+09	--	--	na	8.6E+04	--	--	na	1.1E+08	--	--	na	1.1E+08
Pyrene	0	--	--	na	4.0E+03	--	--	na	5.2E+06	--	--	na	4.0E+02	--	--	na	5.2E+05	--	--	na	5.2E+05
Radionuclides																					
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	3.5E+02	2.4E+03	na	5.5E+06	5.0E+00	1.3E+00	na	4.2E+02	1.6E+03	6.1E+02	na	5.5E+05	3.5E+02	6.1E+02	na	5.5E+05
Silver	0	3.4E+00	--	na	--	5.8E+01	--	na	--	8.8E-01	--	na	--	2.9E+02	--	na	--	5.8E+01	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	4.0E+01	--	--	na	2.0E+05	--	--	na	4.0E+00	--	--	na	2.0E+04	--	--	na	2.0E+04
Tetrachloroethylene ^C	0	--	--	na	3.3E+01	--	--	na	1.6E+05	--	--	na	3.3E+00	--	--	na	1.6E+04	--	--	na	1.6E+04
Thallium	0	--	--	na	4.7E-01	--	--	na	6.1E+02	--	--	na	4.7E-02	--	--	na	6.1E+01	--	--	na	6.1E+01
Toluene	0	--	--	na	6.0E+03	--	--	na	7.8E+06	--	--	na	6.0E+02	--	--	na	7.8E+05	--	--	na	7.8E+05
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Toxaphene ^C	0	7.3E-01	2.0E-04	na	2.8E-03	1.3E+01	9.7E-02	na	1.4E+01	1.8E-01	5.0E-05	na	2.8E-04	5.9E+01	2.4E-02	na	1.4E+00	1.3E+01	2.4E-02	na	1.4E+00
Tributyltin	0	4.6E-01	7.2E-02	na	--	7.9E+00	3.5E+01	na	--	1.2E-01	1.8E-02	na	--	3.7E+01	8.7E+00	na	--	7.9E+00	8.7E+00	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	9.1E+04	--	--	na	7.0E+00	--	--	na	9.1E+03	--	--	na	9.1E+03
1,1,2-Trichloroethane ^C	0	--	--	na	1.6E+02	--	--	na	7.8E+05	--	--	na	1.6E+01	--	--	na	7.8E+04	--	--	na	7.8E+04
Trichloroethylene ^C	0	--	--	na	3.0E+02	--	--	na	1.5E+06	--	--	na	3.0E+01	--	--	na	1.5E+05	--	--	na	1.5E+05
2,4,6-Trichlorophenol ^C	0	--	--	na	2.4E+01	--	--	na	1.2E+05	--	--	na	2.4E+00	--	--	na	1.2E+04	--	--	na	1.2E+04
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Vinyl Chloride ^C	0	--	--	na	2.4E+01	--	--	na	1.2E+05	--	--	na	2.4E+00	--	--	na	1.2E+04	--	--	na	1.2E+04
Zinc	0	1.2E+02	1.2E+02	na	2.6E+04	2.0E+03	5.8E+04	na	3.4E+07	3.0E+01	3.0E+01	na	2.6E+03	9.7E+03	1.5E+04	na	3.4E+06	2.0E+03	1.5E+04	na	3.4E+06

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)	Note: do not use QL's lower than the minimum QL's provided in agency guidance
Antimony	8.3E+04	
Arsenic	2.3E+03	
Barium	na	
Cadmium	2.7E+01	
Chromium III	3.9E+03	
Chromium VI	1.1E+02	
Copper	9.2E+01	
Iron	na	
Lead	8.1E+02	
Manganese	na	
Mercury	9.7E+00	
Nickel	1.2E+03	
Selenium	1.4E+02	
Silver	2.3E+01	
Zinc	8.0E+02	

Mixing Zone Predictions for

Rapidan Mill WWTP - Wet

Effluent Flow = 0.02 MGD
Stream 7Q10 = 54 MGD
Stream 30Q10 = 72 MGD
Stream 1Q10 = 40 MGD
Stream slope = 0.001 ft/ft
Stream width = 75 ft
Bottom scale = 1
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = 1.1191 ft
Length = 10550.28 ft
Velocity = .9962 ft/sec
Residence Time = .1226 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = 1.333 ft
Length = 9085.29 ft
Velocity = 1.1151 ft/sec
Residence Time = .0943 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .933 ft
Length = 12315.88 ft
Velocity = .8852 ft/sec
Residence Time = 3.8646 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 25.88% of the 1Q10 is used.

Mixing Zone Predictions for

Rapidan Mill WWTP - Annual

Effluent Flow = 0.02 MGD
Stream 7Q10 = 9.7 MGD
Stream 30Q10 = 16 MGD
Stream 1Q10 = 6.5 MGD
Stream slope = 0.001 ft/ft
Stream width = 75 ft
Bottom scale = 1
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .3969 ft
Length = 25340.81 ft
Velocity = .5054 ft/sec
Residence Time = .5803 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .5365 ft
Length = 19667.46 ft
Velocity = .6163 ft/sec
Residence Time = .3693 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .3119 ft
Length = 31033.2 ft
Velocity = .4312 ft/sec
Residence Time = 19.9917 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 5.% of the 1Q10 is used.

VaFWIS Initial Project Assessment Report Compiled on

5/28/2014, 9:04:08 AM

[Help](#)

Known or likely to occur within a 2 mile radius around point
38,18.370 78,3.580
 in **047 Culpeper County, 113 Madison County, 137 Orange**
County, VA

[View Map of](#)
[Site Location](#)

423 Known or Likely Species ordered by Status Concern for Conservation
 (displaying first 21) (21 species with Status* or Tier I** or Tier II**)

<u>BOVA Code</u>	<u>Status*</u>	<u>Tier**</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Confirmed</u>	<u>Database(s)</u>
020045	FESE	I	<u>Salamander, Shenandoah</u>	Plethodon shenandoah		BOVA
040096	ST	I	<u>Falcon, peregrine</u>	Falco peregrinus		BOVA
040129	ST	I	<u>Sandpiper, upland</u>	Bartramia longicauda		BOVA
040293	ST	I	<u>Shrike, loggerhead</u>	Lanius ludovicianus	<u>Yes</u>	BOVA,SppObs
040379	ST	I	<u>Sparrow, Henslow's</u>	Ammodramus henslowii	<u>Yes</u>	SppObs
060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>	TEWaters,Habitat
040292	ST		<u>Shrike, migrant loggerhead</u>	Lanius ludovicianus migrans		BOVA
050022	FP		<u>Bat, northern long-eared</u>	Myotis septentrionalis		BOVA
100248	FS	I	<u>Fritillary, regal</u>	Speyeria idalia idalia		BOVA
040093	FS	II	<u>Eagle, bald</u>	Haliaeetus leucocephalus	<u>Yes</u>	BOVA,BAEANests
060029	FS	III	<u>Lance, yellow</u>	Elliptio lanceolata		BOVA
030063	CC	III	<u>Turtle, spotted</u>	Clemmys guttata		BOVA
030012	CC	IV	<u>Rattlesnake, timber</u>	Crotalus horridus		BOVA
010077		I	<u>Shiner, bridle</u>	Notropis bifrenatus		BOVA
040225		I	<u>Sapsucker, yellow-bellied</u>	Sphyrapicus varius		BOVA
040319		I	<u>Warbler, black-throated green</u>	Dendroica virens		BOVA
040306		I	<u>Warbler, golden-winged</u>	Vermivora chrysoptera		BOVA
040052		II	<u>Duck, American</u>	Anas rubripes		BOVA

Attachment 6

			<u>black</u>		
040105		II	<u>Rail, king</u>	Rallus elegans	BOVA
040320		II	<u>Warbler, cerulean</u>	Dendroica cerulea	BOVA
040266		II	<u>Wren, winter</u>	Troglodytes troglodytes	BOVA

To view **All 423 species** [View 423](#)

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (1 records)

[View Map of All Anadromous Fish Use Streams](#)

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE *	Highest Tier **	
P186	Rapidan river	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
112	RAPIDAN MILL DAM	RAPIDAN RIVER	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (1 Reach)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE [*]	BOVA Code, Status [*] , Tier ^{**} , Common & Scientific Name					
<u>Rapidan River</u> (02080103)	ST	060081		ST		II <u>Floater, green</u> Lasmigona subviridis	<u>Yes</u>

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)
[View Map of All Query Results](#)
[Bald Eagle Nests](#)

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
CU9701	16	Mar 16 2010	HISTORIC	Yes
CU9901	6	Mar 16 2010	HISTORIC	Yes

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (2 Reaches)
[View Map Combined Reaches from Below
of Habitat Predicted for WAP Tier I & II
Aquatic Species](#)

Stream Name	Tier Species						View Map
	Highest TE [*]	BOVA Code, Status [*] , Tier ^{**} , Common & Scientific Name					
Rapidan River (20801031)	ST	060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>
Robinson River (20801031)	ST	060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 5/28/2014, 9:04:08 AM 1555393.0 report=IPA searchType=R dist= 3218 poi= 38,18.370 78,3.580
 PixelSize=64; Anadromous=0.030291; BECAR=0.02771; Bats=0.019917; Buffer=0.171699; County=0.065032; Impediments=0.021954; Inlt=0.212858; PublicLands=0.041061;
 SppObs=0.504525; TEWaters=0.047475; TierReaches=0.068432; TierTerrestrial=0.081215; Total=1.37827; Trout=0.03362

Site Location

38,18,37.0 -78,03,58.0
is the Search Point

Show Position Rings

☒ Yes ☐ No
1 mile and 1/4 mile at the
Search Point

Show Search Area

☒ Yes ☐ No
2 Search distance miles
radius

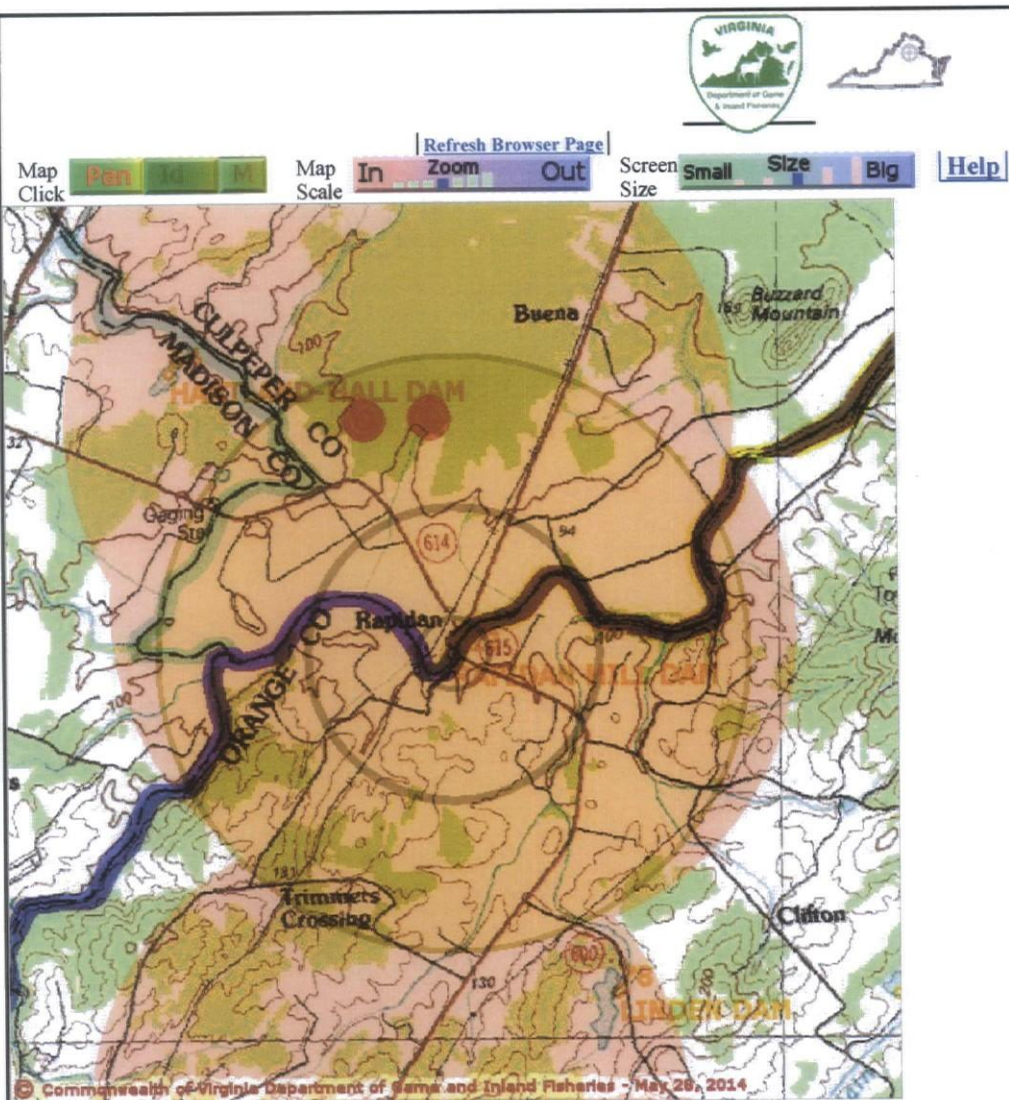
Search Point is at
map center

Base Map Choices

Topography

Map Overlay Choices

Current List: Position, Search,
BECAR, BAEANests,
TEWaters, TierII, Habitat,
Trout, Anadromous



Point of Search 38,18,37.0 -78,03,58.0

Map Location 38,18,37.0 -78,03,58.0

Select Coordinate System: ☒ Degrees, Minutes, Seconds Latitude - Longitude

☐ Decimal Degrees Latitude - Longitude

☐ Meters UTM NAD83 East North Zone

☐ Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see Microsoft.terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 751725 and top 4249115. Pixel size is 16 meters. Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+/-

Map Overlay Legend

T & E Waters**Federal****State****Predicted Habitat
WAP Tier I & II****Aquatic****Terrestrial****Trout Waters****Class I - IV****Class V - VI****Anadromous Fish Reach****Confirmed****Potential****J23****Impediment****Position Rings
1 mile and 1/4
mile at the
Search Point****2 mile radius
Search Area****Bald Eagle
Concentration Areas
and Roosts**

are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.
Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>
All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2014-05-28 09:07:51 (qa/qc December 5, 2012 8:04 - tn=555393.0 dist=3218
I)
\$poi=38.3102778-78.0661111

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Orange County, Virginia.

PUBLIC COMMENT PERIOD: August 7, 2014 to September 8, 2014

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Rapidan Mill LLC, 809 Bolling Ave, Unit C, Charlottesville, VA 22902, VA0092339

NAME AND ADDRESS OF FACILITY: Clean Rapidan Water Company- Rapidan Mill WWTP, 7026 Rapidan Rd, Orange, VA 22960

PROJECT DESCRIPTION: Rapidan Mill LLC has applied for a reissuance of a permit for the private Clean Rapidan Water Company- Rapidan Mill WWTP. The applicant proposes to release treated sewage wastewaters from commercial areas at a rate of 0.02 million gallons per day into a water body. The sludge will be disposed by pump and haul to an approved facility (Remington WWTP – VA0076805). The facility proposes to release the treated sewage in the Rapidan River in Orange County in the Rappahannock River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD, Total Suspended Solids, Total Kjeldahl Nitrogen, Total Nitrogen, Total Phosphorus, Dissolved Oxygen, and *E. coli*. The permit will monitor without limitation Flow and Nitrate+Nitrite.

This facility is subject to the requirements of 9VAC25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Alison Thompson

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3834 E-mail: Alison.Thompson@deq.virginia.gov Fax: (703) 583-3821



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
(804) 786-6124

June 11, 2014

Susan Mackert
DEQ – Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193

Re: VA0092339, Rapidan Mill WWTP

Dear Ms. Mackert:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Rapidan River – Blue/Cedar/Barbour/Summer Duck Runs Stream Conservation Unit (SCU) is within the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The Rapidan River – Blue/Cedar/Barbour/Summer Duck Runs SCU has been given a biodiversity ranking of B3, which represents a site of high significance. The natural heritage resources associated with this site are:

<i>Elliptio lanceolata</i>	Yellow lance	G2G3/S2S3/SOC/NL
<i>Lasmigona subviridis</i>	Green floater	G3/S2/NL/LT
	Aquatic Natural Community	G33?/S3?/NL/NL
	Aquatic Natural Community	G2/S2/NL/NL

The Yellow lance occurs in mid-sized rivers and second and third order streams. To survive, it needs a silt-free, stable streambed and well-oxygenated water that is free of pollutants. This species has been the subject of taxonomic debate in recent years (NatureServe, 2009). Currently in Virginia, the Yellow lance is recognized from populations in the Chowan, James, York, and Rappahannock drainages. Its range also extends into Neuse-Tar river system in North Carolina. In recent years, significant population declines have been noted across its range (NatureServe, 2009). Please note that this species is currently classified as a species of concern by the United States Fish and Wildlife Service (USFWS) however, this designation have no official legal status.

The Green floater, a rare freshwater mussel, ranges from New York to North Carolina in the Atlantic Slope drainages, as well as the New and Kanawha River systems in Virginia and West Virginia (NatureServe, 2009). In

State Parks • Soil and Water Conservation • Outdoor Recreation Planning
Natural Heritage • Dam Safety and Floodplain Management • Land Conservation

Virginia, there are records from the New, Roanoke, Chowan, James, York, Rappahannock, and Potomac River drainages. Throughout its range, the Green floater appears to prefer the pools and eddies with gravel and sand bottoms of smaller rivers and creeks, smaller channels of large rivers (Ortman, 1919) or small to medium-sized streams (Riddick, 1973). Please note that this species has been listed as state threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species. The Yellow lance may be particularly sensitive to chemical pollutants and exposure to fine sediments from erosion (NatureServe, 2009).

The documented Aquatic Natural Community is based on Virginia Commonwealth University's INSTAR (*Interactive Stream Assessment Resource*) database which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Community is significant on multiple levels. First, this stream is a grade B, per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. This stream reach also holds a "Healthy" stream designation per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of this stream to ideal stream conditions of biology and habitat for this region. Lastly, this stream contributes to high Biological Integrity at the watershed level (6th order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Community and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species.

To minimize impacts to aquatic resources, DCR supports the use of uv/ozone in place of chlorination disinfection and utilization of new technologies as they become available to improve water quality. Due to the legal status of the Green floater, DCR recommends coordination with the Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570). Due to the presence of freshwater mussels, DCR also recommends adoption of the EPA ammonia limits to be protective of mussels.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

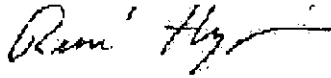
Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The VDGIF maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov).

Should you have any questions or concerns, feel free to contact René Hypes at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "René Hypes", with a stylized flourish at the end.

S. René Hypes
Project Review Coordinator

CC: Susan Lingenfelser, USFWS
Brett Hillman, USFWS
Ernie Aschenbach, VDGIF

Literature Cited

- NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: April 27, 2010).
- Ortman, A.E. 1919. A monograph of the naiades of Pennsylvania, Part 3: Systematic account of the genera and species. Mem. Carnegie Mus. 8:1-384.
- Riddick, M.B. 1973. Freshwater mussels of the Pamunkey River system, Virginia. M.S. Thesis, Virginia Commonwealth University, Richmond, VA 105pp.
- Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. Fisheries 18: 6-9.